Clinical Practice Guideline for an Infection Control/Exposure Control Program in the Oral Healthcare Setting

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Conflict of Interest Disclosure Statement

- Dr. Terézhalmy has done consulting work for Procter & Gamble and has served on the dentalcare.com Advisory Board. He has no relevant financial relationships to disclose.
- Dr. Huber is a member of the dentalcare.com Advisory Board and has no relevant financial relationships to disclose.
- Ms. Kissell reports no conflicts of interest associated with this course. She has no relevant financial relationships to disclose.

Short Description – Forensic Dentistry

This course will describe how to develop infection control/exposure control strategies appropriate for the oral healthcare setting. new trend of ONPs usage in youth and young adults.

Course Contents

- Introduction
- Education and Training
- Vaccinations
- Personal Protective Equipment
- Hand Hygiene
- Engineering and Work-practice Controls
- Environmental Infection Control
- Post-exposure Evaluation and Follow-up
- Transmission-based Precautions
- Respiratory Hygiene/Cough Etiquette
- Medical Conditions and Work Restrictions
- Summary
- References / Additional Resources

Overview

This course presents a prototypical, evidence-based, hierarchical infection control/exposure control protocol predicated on Standard Precautions and Transmission-based Precautions to prevent or minimize healthcare-associated infections in oral healthcare settings. The COVID-19 pandemic unveiled the need for additional precautions which are summarized at the end of this document, some of which that may be considered for a future infection control standard.

Syllabus: Infection Prevention, Hazardous Waste Management, and Hazard Communication Compliance

The information in this 13-module syllabus is intended (1) to meet initial educational/training requirements for Dental Students, Dental Hygiene Students, and Dental Assistant Students as mandated by OSHA and other federal, state, local and professional organizations, (2) to provide a framework for an in-service training program in oral healthcare settings to meet annual educational/training requirements as mandated by OSHA and other federal, state, local and professional organizations, and (3) to serve as a resource for oral healthcare personnel wishing to review evidence-based information on specific topics related to infection prevention, hazardous waste management, and hazard communication compliance.

This course offers an overview of infection prevention as well as a summary of several of the modules in the series. For more in-depth information on a specific topic, please refer to the additional modules from this series that are cited in the course.
Infection Prevention, Hazard Waste Management, and Hazard Communication Compliance

Learning Objectives

Upon completion of this course, the dental professional should be able to:

- Understand the rationale for and develop policies and practices (i.e., an office infection control/exposure control protocol) intended to prevent or minimize healthcare-associated infections in the oral healthcare setting.
- Understand the role of and implement vaccination strategies intended to reduce the risk of vaccine preventable diseases in the oral healthcare setting.
- Understand the role of and implement the use of personal protective equipment to prevent or reduce the risk of occupational exposure in the oral healthcare setting.
- Understand the role of and implement appropriate hand hygiene.
- Understand the role of and incorporate engineering and work practice controls to eliminate or isolate the hazards in the workplace.
- Understand the role of and implement environmental infection control to provide a safer work environment.
- Understand the importance of post-exposure follow-up and associated policies and practices to reduce the risk of post-exposure infection.
- Understand the principles of and implement transmission-based precautions to prevent the potential spread of specific diseases (e.g., TB disease).
- Understand the principles of and implement respiratory hygiene/cough etiquette, i.e., basic source control measures with patients, visitors, and oral health care professionals (OHCP) with signs and symptoms of respiratory tract infection.
- Understand the principles of administrative controls and establish exclusion policies from work and patient contact.

Introduction

The primary obligation and ultimate responsibility of oral healthcare professionals (OHCP) is the timely delivery of quality care in the privacy of a comfortable and ***safe environment.*** While the transmission of pathogenic microorganisms in oral healthcare settings is rare, healthcare-associated infections (HAIs) do present a potential hazard to OHCP and patients alike. ***To prevent or minimize HAIs, oral healthcare facilities, like all healthcare facilities, are mandated to develop a written infection control/exposure control protocol predicated on a hierarchy of preventive strategies.***[1-3]

Historically, strategies to eliminate or reduce the risk of HAIs were based on Universal Precautions, i.e., the concept that patients with bloodborne pathogens can be asymptomatic (unaware that they are infectious) and, therefore, all blood and body fluids contaminated with blood were treated as infectious. Today, Standard Precautions (periodically expanded with new evidence-based elements) and Transmission-based Precautions provide the fabric for a hierarchy of preventive strategies to protect both OHCP and patients and apply to contact with blood and all other potentially infectious material (OPIM).

Infection control/exposure control strategies should be appropriate for the oral healthcare setting. As these strategies deviate from optimal design and implementation, the quality (value, outcome) of infection control/exposure control program decreases at an accelerated rate. It is recommended that an Office Infection Prevention Coordinator be appointed with responsibility for the development and management of the office infection control/exposure control program to ensure that the criteria are relevant, the procedures are efficient, and the practices are successful. Periodic observational assessments should be completed using the Infection Prevention Checklist for Dental Settings, available in print or through the mobile app CDC DentalCheck, or a similar tool.[4] However, the creation and maintenance of a safe work environment mandates the commitment and accountability of all OHCP.

Education and Training

OHCP shall participate in an education and training program at the time of initial assignment to tasks in which exposure to blood and OPIM may occur and at least annually thereafter.

1. Background[1,2]

Compliance with the exposure control/infection control protocol is significantly improved if OHCP understand the rationale for the written policies and practices intended to prevent HAIs. The objectives of the education and training program are to enlighten OHCP regarding (1) the risk of HAIs, (2) preventive strategies, (3) post-exposure evaluation and follow-up and (4) administrative controls.

- **a.** Infection, an invasion and multiplication of microorganisms in body tissues, results from local cellular injury as a consequence of:
  - **I.** Competitive metabolism
  - **II.** Toxin production
  - **III.** Immune-mediated reaction
- **b.** "Chain of infection," the transmission of infectious agents in healthcare settings, requires three elements:
  - **I.** Source or reservoir of infectious agents
    - **i.** Pathogens associated with HAIs are derived primarily from humans, but contaminated objects and environmental sources are also implicated.
  - **II.** Susceptible host with a portal of entry receptive of the agent
    - **i.** Establishment of infection and its severity relate to the state of host defense mechanisms; however, the numbers, pathogenicity, virulence, and antigenicity of organisms are important determinants.
  - **III.** Mode of transmission for the agent
    - **i.** Pathogens may be transferred from the source to a host by contact transmission, i.e., direct or indirect contact transmission; or respiratory transmission, i.e., inhalation of droplets or droplet nuclei (airborne transmission).
- **c.** Pathogenic organisms of concern in the oral healthcare setting
  - **I.** HBV, HCV, and HIV
  - **II.** Measles, mumps, and rubella
  - **III.** Herpes simplex, varicella (chicken pox), and varicella zoster (shingles)

IV. Influenza, respiratory syncytial viruses (RSV), Mycobacterium tuberculosis
V. *Streptococci, staphylococci*
VI. *Cytomegalovirus*

d. Preventive strategies
I. Education and training
II. Immunizations
III. Personal protective equipment
IV. Hand hygiene
V. Engineering and work-practice controls
VI. Environmental infection control
VII. Transmission-based precautions
VIII. Respiratory hygiene and cough etiquette
IX. Post-exposure evaluation and follow-up
X. Administrative controls and work restrictions

2. Execution/Compliance

a. An education and training program is completed by all OHCP prior to initial assignment to tasks and procedures in which exposure to blood and OPIM may occur and at least annually thereafter.
I. The program is scheduled at an acceptable time for and at no cost to OHCP.
II. The presentation is appropriate in content and vocabulary for the educational level of participants.
III. The program is conducted by person(s) knowledgeable about the subject.
IV. The speaker provides an opportunity for interactive questions and answers.

b. Training record
I. An individual Training Record that adheres to state and federal requirements is maintained on all OHCP.[2]

Vaccinations

OHCP shall be vaccinated against vaccine preventable infections in accordance with current state and federal regulations, as well as recommendations made by relevant professional organizations. In addition, all OHCP should be screened for tuberculosis (TB) upon hire.

1. Background[2,5,6]

Immunization programs have markedly reduced the incidence of vaccine-preventable diseases. Today, a substantial percentage of morbidity and mortality from several vaccine preventable diseases occurs in adults who escaped natural infection or immunization and who now are at increased risk of these diseases because of lifestyle, advancing age, the presence of certain chronic diseases, or occupation (e.g., healthcare workers).

2. Execution/Compliance

a. Mandated hepatitis B vaccination series
I. Hepatitis B vaccine is made available at no cost to OHCP, without a history of prior immunization, at the time of initial assignment to tasks in which exposure may occur.
II. If the hepatitis B vaccination series is declined, the person must sign a copy of the Mandatory Hepatitis B Vaccination Declination Form (Box 1).
III. If subsequently the person decides to submit to vaccination, while still covered under the standard, the hepatitis B vaccination series is made available at that time.

Box 1. Mandatory Hepatitis B Vaccination Declination Form.

I understand that due to my occupational exposure to blood or other potentially infectious materials I may be at risk of acquiring Hepatitis B virus (HBV) infection. I have been given the opportunity to be vaccinated with Hepatitis B vaccine, at no charge to myself. However, I decline Hepatitis B vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring Hepatitis B, a serious disease. If in the future I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with Hepatitis B vaccine, I can receive the vaccination series at no charge to me.

_____ _____

Employee Signature Date

IV. Post-vaccination seroconversion - 1st vaccination series
i. Testing for HBsAb is strongly recommended 1-2 months after the 3rd dose of the 1st vaccination series
ii. A HBsAb titer of >10 mIU/mL is considered adequate
iii. A person who do not develop an adequate antibody response to the 1st vaccination series will be offered a second 3-dose series
V. Post-vaccination seroconversion - 2nd vaccination series
i. Testing for HBsAb is strongly recommended 1-2 months after the 3rd dose of the 2nd
ii. If no antibody response occurs, testing for HBsAg is strongly recommended
i. HBsAg-negative OHCP will be counseled about precautions to prevent HBV infection and the need to obtain HBIG prophylaxis for any known or probable parenteral exposure to HBsAg-positive blood.
ii. HBsAg-positive OHCP will be referred for post-exposure evaluation and follow-up and counseled about the need for work restrictions to prevent the transmission of HBV to others.

b. Booster doses of the HB vaccine
I. At this time, routine booster doses of the hepatitis B vaccine are not indicated; if at a future date booster doses are recommended, they will be made available at no cost to OHCP.

c. Other vaccines highly recommended for all OHCP include influenza, measles, mumps, rubella, varicella, and pertussis.

d. In certain circumstances, OHCP should also be vaccinated against meningococcal disease, typhoid fever, and poliomyelitis.

e. Vaccines recommended for adults in general include the pneumococcal polysaccharide vaccine, tetanus and diphtheria toxoids, human papillomavirus vaccine, zoster vaccine, and hepatitis A vaccine.

f. OHCP unable or unwilling to be vaccinated as recommended will be educated regarding their exposure risk and the management of work-related illness and work restrictions (if applicable).

g. Documentation of vaccination status
I. The vaccination status of OHCP is documented in their individual Medical Record and includes the following information:
i. The dates of vaccination (where applicable or available)
ii. Evidence of immunity (where applicable or available)
iii. A signed copy of the mandatory hepatitis B vaccination declination form (where applicable)

Personal Protective Equipment

To prevent or reduce the risk of disease transmission, personal protective equipment shall be worn by all OHCP when performing procedures that are likely to result in exposure to blood and OPIM.

1. Background [2,7]
Pathogenic organisms in blood and OPIM may come in contact with skin; conjunctival and oral mucosal tissues; and respiratory epithelium by inhalation of airborne microorganisms, i.e., droplets or droplet nuclei suspended in air. Personal protective equipment (PPE) is designed to protect the skin and mucous membranes (eyes, nose and mouth) and respiratory epithelium of OHCP from exposure to a source or reservoir of pathogenic organisms by contact transmission, i.e., direct or indirect contact transmission; and respiratory transmission, i.e., inhalation of droplets or droplet nuclei (airborne transmission).

2. Execution/Compliance
a. Personal protective equipment, which does not permit blood or OPIM to pass through to or reach street clothes, undergarments, skin, or mucous membranes under normal conditions of use and for the duration of time that the protective equipment is used, is provided for and is routinely worn by all OHCP.
I. Protective clothing
i. Gowns or lab coats with long sleeves are worn to protect the forearms when splash, spatter, or spray of blood or OPIM to the forearms is anticipated.
ii. Protective clothing is changed daily, whenever it becomes visibly soiled, and as

soon as possible if penetrated by blood or OPIM.
iii. Protective clothing is removed before leaving the work area.
iv. Dirty protective clothing is placed in designated areas for disposal or washing.

II. Task-specific gloves
i. Non-surgical, surgical, or heavy-duty utility gloves are worn by all OHCP to prevent or reduce the risk of contaminating the hands with blood or OPIM and to prevent or reduce the risk of cross-infecting in the clinical process.
i. To reduce the risk of latex-related allergies, low-allergen latex gloves, non-latex, nitrile or vinyl gloves are available.
ii. Non-surgical and surgical gloves are single-use items, which are used for only one patient and are then discarded.
iii. When torn or punctured, gloves are changed as soon as possible.
iv. Gloves may not be washed because it can lead to wicking (penetration of liquids through undetectable holes in the gloves) and subsequent hand contamination.
v. Double gloving is acceptable for extensive oral surgical procedures.
vi. Heavy-duty utility gloves are recommended for all instrument, equipment, and environmental surface cleaning and disinfection.
vii. Wearing gloves does not eliminate the need for hand hygiene.

III. Surgical masks
i. Surgical masks that cover both the nose and the mouth are worn by all OHCP during clinical activities likely to generate splash, splatter, and aerosols.
ii. Surgical masks provided for routine use have filtration efficiency of 95% for microorganisms greater than 3 microns.
iii. When a mask becomes wet from exhaled air or contaminated with infectious droplets, spray, or from touching the mask with contaminated fingers it is changed as soon as possible (between patients or even during patient treatment).

IV. Particulate filter respirators
i. When airborne infection isolation precautions are necessary (e.g., transmission-based precautions for patients with TB), a National Institute for Occupational Safety and Health (NIOSH)-certified particulate-filter respirator (N95, N99, or N100) is used, which have the ability to filter .3 µm particles with a filtering efficiency of 95, 99, and 99.7% respectively.

V. Protective eyewear
i. Protective eyewear with solid side shields or a face shield is worn by OHCP during the clinical process likely to generate splash, splatter, and aerosols.
ii. Protective eyewear with solid side shields is also provided for the patients to protect their eyes from spatter and debris generated during the clinical process.
iii. Protective eyewear is cleaned with soap and water or disinfectant between patients.

VI. Ventilation devices
i. Mouthpieces, pocket masks, and resuscitation bags are used when CPR is administered.

Hand Hygiene

Hand hygiene procedures shall be implemented at the beginning of each work cycle, before gloving, after degloving, and before regloving, and anytime the hands are visibly contaminated with blood or OPIM

1. Background[8,9]
The transmission of healthcare-associated pathogens most often occurs via the contaminated hands of OHCP. It is axiomatic that wearing gloves during patient care is an essential element of standard precautions, yet gloves do not provide complete protection and the hands are frequently contaminated after the gloves are removed. Proper hand hygiene is one of the most important infection control measures for preventing HAIs.

The acquisition of healthcare-associated pathogens and prevalence of HAIs is reduced when hand hygiene is performed more frequently and adherence to recommended hand hygiene practices is improved. Oral healthcare facilities are accountable for establishing a system in which OHCP have

the knowledge, competence, time, and tools to practice hand hygiene. OHCP have the duty to perform hand hygiene - perfectly and every time.

The term hand hygiene is a general term that applies to (1) handwashing (2) hand antisepsis, and (3) surgical hand antisepsis. Products used for hand hygiene in healthcare settings are detergents (surfactants, the term "soaps" is often used). Detergents are compounds that possess cleaning action and are composed of both hydrophilic and lipophilic parts. An antimicrobial soap is a soap that contains an antiseptic agent, a substance that when applied to skin reduces the microbial flora.

2. Execution/compliance

a. General considerations

I. Use of artificial fingernails is not recommended; fingernails are kept ¼" in length to facilitate thorough cleaning underneath them and to prevent glove tears.

II. All jewelry that infers with glove use is removed from the hands and wrists.

III. Sinks with electronic, foot, or knee action faucet controls are provided for asepsis and ease of function.

IV. The preferred method for hand hygiene depends on the type of procedure to be performed, the degree of contamination, and the desired persistence of antimicrobial action on the skin.

b. Routine handwash

I. Removes soil and transient microorganisms

II. Acceptable method prior to performing physical examinations and nonsurgical procedures

III. Technique and products

i. Hands are wetted under warm running water

ii. Nonantimicrobial (i.e., plain) soap is applied

iii. Hands are rubbed together vigorously for a minimum of 15-20 seconds to work-up lather

iv. Fingernails are cleaned using the fingernails on the opposite hand

v. Soap is rinsed off with the hands held under warm running water

vi. Hands are dried with disposable paper towels or air dryer

c. Antiseptic handwash

I. Removes or destroys transient microorganisms and reduces resident flora

II. Acceptable method prior to performing physical examinations and nonsurgical procedures

III. Technique and products

i. Hands are wetted under warm running water

ii. Antimicrobial soap (e.g., chlorhexidine, povidone iodine - 5 to 10% formulations) is applied

iii. Hands are rubbed together vigorously for 15-20 seconds to work-up lather

iv. Fingernails are cleaned using the fingernails on the opposite hand

v. Soap is rinsed off with the hands held under warm running water

vi. Hands are dried with disposable paper towels or air dryer

d. Antiseptic hand rub (is the preferred method when there is no visible soil on hands)

I. Removes or destroys transient microorganisms and reduces resident flora

II. Acceptable method prior to performing physical examinations and nonsurgical procedures

III. Technique and products

i. Hands are rubbed together vigorously with an alcohol-based hand-rub product until dry

i. Containing 60 to 95 % ethanol or isopropanol alcohol

ii. Alcohol-based preparations containing 0.5% to 1% chlorhexidine gluconate have persistent activity

e. Surgical antisepsis

I. Removes or destroys transient microorganisms and reduces resident flora (persistent effect)

II. Acceptable method prior to performing surgical procedures

III. Option #1

i. Technique and products

i. Hands are wetted under warm running water

ii. Antimicrobial soap (e.g., chlorhexidine, povidone iodine - 5 to 10% formulations povidone iodine - 5 to 10%, formulations) is applied

iii. Hands and forearms are scrubbed vigorously for 2 to 6 minutes to work-up lather
iv. Fingernails are cleaned using the fingernails on the opposite hand
v. Soap is rinsed off under warm running water
vi. Hands are dried with disposable paper towels or air dryer

IV. Option #2
i. Technique and products
i. Hands are wetted under warm running water
ii. Nonantimicrobial (i.e., plain) soap is applied
iii. Hands are rubbed together vigorously for 15 seconds to work-up lather
iv. Fingernails are cleaned using the fingernails on the opposite hand
v. Soap is rinsed off with the hands held under warm running water.
vi. Hands are dried with disposable paper towels or air dryer.
vii. Hands and forearms are rubbed with an alcohol-based hand-rub product (containing 60 to 95 % ethanol or isopropanol alcohol; alcohol-based preparations containing 0.5% to 1% chlorhexidine gluconate have persistent activity) until the hands and forearms are dry.

f.Hand hygiene products are stored and dispensed according to manufacturers' directions.

Engineering and Work-practice Controls

Engineering and work-practice controls shall be implemented to prevent or reduce the risk of exposure to blood and OPIM and to promote safer behavior in the workplace.

1. Background[1,2,10,11]

a. The unique nature of oral healthcare settings, dental procedures, and instrumentation require specific strategies to prevent the transmission of HAIs. Engineering and work-practice controls are intended to eliminate or isolate hazards and promote safer behavior in the workplace. Engineering controls take advantage of available technology to eliminate or isolate biohazards (blood or OPIM). When engineering controls are not available or are not practical, work-practice controls are implemented.

b. The direct patient care setting, i.e., the dental treatment room (DTR), is central to the delivery of oral healthcare, but there are other environments within oral healthcare settings that support the delivery of clinical services, i.e., dental radiography and dental laboratory facilities. While the following recommendations primarily relate to non-surgical dental specialty areas, they are sufficiently flexible to serve as a template for developing and implementing practice-specific infection control strategies.

2. Execution/Compliance

a. General considerations
I. Eating, drinking, smoking, applying cosmetics or lip balm, and handling contact lenses are prohibited in work areas where blood or OPIM may be present.
II. Food and drink are not kept in refrigerators, freezers, or cabinets or on shelves, countertops, or benchtops in work areas where blood or OPIM may be present.
III. All items used in patient care should be stored in closed cabinets or drawers. Mobile carts used for patient care should not be cluttered with excess materials.
IV. Bulk items should be covered to prevent contamination and caution should be exercised when retrieving such items to ensure that the remaining items are not contaminated.
V. Begin each day with a routine handwash from fingertips to the wrist.
VI. Use water that meets Environmental Protection Agency (EPA) regulatory standards, i.e., water containing less than 500 colony forming units (CFUs/mL of heterotrophic bacteria) for handwashing and as a coolant/irrigant for nonsurgical procedures.
i. If using water bottles, fill dental unit water bottle according to manufacturer's recommendations. Add continuous-use dental unit waterline (DUWL) cleaning

product if indicated. Note: Follow dental unit and water bottle manufacturer's instructions for products and protocols for maintenance and monitoring DUWL quality.

b. Dental Treatment Room infection control

I. Preparation

i. Complete hand hygiene and don PPE.

ii. Clean and disinfect clinical contact surfaces with an EPA-registered intermediate-level disinfectant with a tuberculocidal claim.

iii. Replace gloves and place protective plastic covers on clinical contact surfaces such as headrests, dental unit control switches, air and water line hoses, light handles, chairside light curing unit, and other hard-to-clean areas and equipment. Place air and water syringes, saliva ejector, and high-volume evacuation tips.

iv. Have appropriate instrument packs and supplies ready to begin treatment. This includes all necessary PPE (gloves, masks, eye protection, etc.) for the provider, assistant and the patient.

v. Check all sterilized instrument packs and packages to ensure they are intact and the external chemical indicator has changed to the appropriate color.

II. Treatment

i. Seat the patient.

ii. Provide the patient with safety glasses.

iii. Open sterile instrument trays, pack(s) or cassettes with clean, ungloved hands and without directly touching the contents.

i. Observe internal indicator strip(s) for color change.

ii. Leave wrapping material underneath as a barrier for the work surface.

iv. Perform hand hygiene, don gloves and other PPE.

i. Sterile gloves are used for invasive surgical procedures.

v. Connect hand pieces

vi. Use pre-sterilized burs and files, or manufacturer's pre-packaged single-use burs.

vii. For surgical procedures, use expendable items, such as cotton and gauze products that have been sterilized within pouches.

viii. Preprocedural and intraprocedural precautions for patient treatment

i. All procedures are performed in such a manner as to minimize splashing, spraying, spattering, and the generation of aerosols.

ii. Patients may complete a pre-procedural rinse with chlorhexidine gluconate, essential oil, cetylpyridinium chloride (CPC) or povidone iodine-containing mouthwash.[12]

iii. Use rubber dental dam, high volume evacuator (HVE) and other protective barriers, engineering and work practice controls wherever possible.

ix. Use one handed "scoop" technique or a recapping safety device to recap anesthetic needles.

x. Saliva ejectors

i. Prevent backflow in low-volume suction lines. Do not position the section of the suction tubing holding the tip above the patient's mouth.

ii. Instruct patient not to create a seal around the suction tip

iii. Avoid the simultaneous use of other evacuation devices, i.e., high-volume suction.

xi. Dental radiography

i. Cover clinical contact areas with a protective barrier.

ii. Exposing and processing images

i. Hand hygiene and PPE before initiating the process.

ii. Use disposable or heat-sterilized positioning devices.

iii. Use FDA-cleared barriers on film pouches and digital sensors.

iii. For dental film

i. After exposure, remove the film packet from pouch and place in a clean container.

ii. Transport/handle exposed radiographic film in an aseptic manner to prevent contamination of developing equipment.

iv. Digital radiography sensors are cleaned according to manufacturer's recommendations. If they cannot tolerate heat-sterilizing or high-level-disinfectant, use intermediate-level disinfectant with tuberculocidal claim.

v. Panoramic radiography
i. Place disposable plastic cover over bite guide before the patient is positioned in the machine.
ii. If no barrier is used, use a sterile bite guard.
xii. Dental records
i. For EHR: Use keyboard barriers or complete charting and computer entries after removing gloves and performing hand hygiene.
ii. Paper charts are notated and radiographs viewed before gloving or after the gloves are removed and the hands are washed, unless cover gloves are worn.
xiii. Restorative Procedures
i. Use the unit dose concept for dispensing restorative and other dental materials.
ii. If additional material is needed during treatment use aseptic technique to retrieve needed items (e.g., sterile cotton forceps or pliers, an over-glove barrier, or remove gloves and perform hand hygiene).
xiv. Oral surgery procedures
i. Perform surgical hand asepsis.
ii. Use appropriate PPE.
iii. When using laser or electrosurgical units, the thermal destruction of tissue creates laser plumes or surgical smoke which may contain aerosolized infectious material.
iv. Use only sterile saline or sterile water as a coolant/irrigant.
v. Use specifically designed irrigating devices (e.g., bulb syringe, single-use disposable products, or sterilizable tubing).
vi. Biopsy specimens
i. Specimens are placed in leak-proof, puncture-resistant container with a secure lid for storage and transportation.
ii. If the outside of the container becomes visibly contaminated, it is cleaned and disinfected or placed in an impervious bag.
iii. The container is labeled with the biohazard symbol.
vii. Extracted teeth[1]
i. Considered potentially infectious and are disposed as regulated waste.
ii. Teeth sent to the laboratory for shade and size comparisons.
i. Cleaned and disinfected with an EPA-registered, intermediate-level hospital disinfectant with tuberculocidal claim.
iii. Teeth containing dental amalgam are disposed of according to local and state regulations.
iv. Extracted teeth can be disinfected and returned to patients, upon request.
v. Extracted teeth used in an educational setting.
i. The teeth are cleaned of visible blood and gross debris and maintained in a hydrated state (e.g., water or saline) in a well-constructed closed container.
ii. Before clinical exercises or study, the teeth are heat-sterilized.
iii. Disinfect teeth with amalgam restorations by immersion in 10% formalin solution for 2 weeks--review MSDS for occupational safety and health concerns.
xv. Remove PPE and perform hand hygiene before leaving the treatment area.
xvi. Wear appropriate attire outside the DTR, e.g., a clean lab coat when exiting DTR to conduct business elsewhere in the clinic or administrative spaces.
III. DTR turn-around procedures between patients
i. Wear PPE while handling contaminated instruments and cleaning contaminated surfaces.
ii. Place all disposable sharps in designated sharps container in the DTR.
iii. Dispose of all non-sharp, regulated medical waste following local policy.
iv. Remove and dispose of all disposable barriers.
v. Flush water and air lines for 20-30 seconds after each patient from any device connected to the dental water system that enters the patient's mouth.
vi. Remove dental hand piece(s), including slow speed hand piece motors, and

other intraoral instruments that can be removed from air and waterline couplings of dental units.

vii. Follow manufacturer's instructions for cleaning, lubrication, and sterilization of hand pieces and other intraoral instruments and devices removed from dental units.

viii. Place contaminated instruments and reusable sharps in cassette, on trays or other approved containers. Transport to the central sterilization room (CSR) in a manner that minimizes the risk of exposure to persons and the environment.

ix. Return to the DTR without touching any surfaces. While en route, remove PPE and perform hand hygiene.

x. Prepare the DTR for the next patient.

i. Don a fresh pair of gloves.

ii. Clean, then disinfect, clinical contact surfaces with an EPA-registered intermediate-level disinfectant with a tuberculocidal claim.

iii. Remove gloves and perform hand hygiene.

iv. Don a fresh pair of gloves and apply disposable barriers

IV. Securing the DTR at the end of the day

i. Wear appropriate gloves, face protection, and eye protection while cleaning contaminated surfaces.

ii. Clean and disinfect all contact surfaces, dental unit surfaces, and countertops with an EPA-registered disinfectant.

i. To facilitate cleaning, treatment rooms should be free of all unnecessary equipment and supplies.

iii. Empty and clean amalgam trap container per dental unit manufacturer's recommendations.

iv. Flush and clean each water line, HVE and suction hoses, follow manufacturer's instructions if waterline treatment products are used. Follow manufacturer's instructions for cleaning and maintenance of dental unit water bottles.

v. Dispose of regulated waste per local policy.

vi. Clean and disinfect sink area.

vii. Ensure only DTR cleaning materials and no patient care items are stored under the sink.

viii. Inventory consumable unit dose packs, replenish as necessary per local policy. Note: Routinely check for expiration dates on solutions, materials and dispensable items per command policy.

ix. Remove PPE, disinfect safety glasses and perform hand hygiene.

c. Disposal of single use patient-care items[13]

I. Unregulated waste

i. Generally, blood and/or saliva-tinted items (e.g., clinic gowns, gloves, and patient bibs) are not considered regulated waste and are placed in the regular trash receptacle.

II. Regulated waste

i. Regulated waste is disposed of according to the requirements established by local and state environmental agencies.

ii. Disposable sharps (e.g., needles, local anesthetic cartridges, orthodontic wires, scalpel blades, suture needles, endodontic files, and broken instruments) are removed from cassettes, tray sets, or packs; and are placed in a rigid, puncture-resistant, leak-proof container with a secure lid for storage and transportation.

iii. Other regulated waste (e.g., items that drip when held vertically, release fluid when compressed, have dried on fluid that could flake off in transit) is placed in small biohazard bag and is disposed of into a centralized Regulated Waste Receptacle after each appointment.

iv. Biohazard labels (fluorescent orange or orange red, with lettering or symbols in a contrasting color) are affixed as close as feasible to containers of regulated waste by string, wire, adhesive, or other method to prevent their loss or unintentional removal.

v. Regulated waste that has been decontaminated is not labeled or color-coded and is placed in the regular trash receptacle.

d. Treatment of reusable patient-care items[11]

I. Receiving, cleaning, and decontamination

i. Items are first cleaned with a hands-free process using an ultrasonic system with a strainer-type basket.

ii. Wearing heavy-duty gloves, protective eyewear, and protective clothing, the instruments are visually inspected for residual debris and damage.

iii. Residual blood, OPIM, cement and other visible debris are removed using a long-handled brush.
iv. Damaged instruments are replaced and disposed of in the sharps container.

II. Non-critical items, i.e., items that contact only intact skin during their intended use.
i. Disinfect with an EPA-registered intermediate-level hospital disinfectant with tuberculocidal claim.

III. Semi-critical items, i.e., items that touch, but do not penetrate, nonintact skin or mucous membranes; and critical items, i.e., items that penetrate soft tissues and bone during their intended use.
i. Heat-sensitive items are sterilized with ethylene oxide or an FDA-registered sterilant (e.g., products containing glutaraldehyde, glutaraldehyde with phenol, hydrogen peroxide, or hydrogen peroxide with peracetic acid).
i. After sterilization, all items are rinsed with sterile water to remove toxic or irritating residues.
ii. Handled using sterile gloves and dried with sterile towels.
iii. Delivered to the point of use in an aseptic manner.[10]
ii. Heat-tolerant items are heat sterilized in an FDA cleared device.
i. Preparation and packaging
i. The cleaned and inspected instruments are assembled into cassettes, tray sets, or packs with hinged instruments open and unlocked.
ii. An internal chemical indicator is placed in each cassette, tray set, or pack.
iii. If the internal indicator is not visible from the outside of the wrapped and sealed package, an external chemical indicator is placed on each cassette, trays set, or pack to monitor sterilization process.
iii. Sterilization[11]
i. The sterilizer is loaded according to manufacturer's recommendation, in single layers or in racks to increase circulation around the instruments.
ii. The cycle time, temperature, and pressure are set according to the manufacturer's recommendation.
iii. Upon completion of the sterilization cycle, the packages are allowed to dry and cool before removing them from the sterilizer.
iv. Storage[11]
i. Sterilized items are stored in a clean, enclosed, and dry environment.
ii. Sterilized packages remain sterile indefinitely, unless an event causes it to become contaminated (e.g., torn, damp, or wet packages).
v. Monitoring of the sterilization process
i. Mechanical - Confirm cycle time, temperature, and pressure by observing the gauges or displays on the sterilizer for each load.
ii. Chemical - Note color changes of time and temperature sensitive internal and external chemical indicators, which reflect physical conditions during the sterilization process.
iii. Biological - Monitor weekly the sterilization process by an appropriate spore test (according to manufacturer's time, pressure, and temperature recommendation).
i. Spore strip or vial is placed inside the cassette, tray set, or pack.
ii. Cassette, tray set, or pack containing the biological indicator is placed in the center of the load (hardest area to penetrate).
iii. A control strip (which is not heat processed) is used as a control with each spore test.
iv. A record is maintained of the weekly spore testing results.
iv. Additional biological monitoring is performed whenever there is a change in the packaging process, following equipment repair, and when training new employees.
v. Quality assurance procedures following a positive mechanical, chemical, or biological monitoring test.
i. Secure sterilizer from further use.
ii. Make proper log entries.
iii. Review operating procedures.
iv. Take corrective action (repair or replacement).
v. Retest sterilizer using biological monitors (CDC recommends to retest 3 times using an empty chamber).

vi. Loads dating back to the last negative biological indicator should be recalled, rewrapped, and resterilized.

e. Handpieces[14]

I. All handpieces (i.e., high- and slow-speed motors, nose cones, contra-angles, motor-to-angle adapters and prophylaxis angles), unless disposable, are heat sterilized between patients.

i. Following manufacturer instructions for cleaning, sterilization and maintenance procedures to ensure proper sterilization and maximum longevity for the handpiece. For most handpieces, the following generic protocol is appropriate:

i. Before removing handpiece from hose the lines are flushed for 20-30 seconds.

ii. Handpiece should be wiped with a damp cloth or toothbrush. Do not place under running water or submerge in an ultrasonic bath.

iii. Apply cleaner/lubricant into the drive air line for any handpiece requiring pre-sterilization treatment.

iv. The handpiece is reattached to hose with bur inserted and is activated to remove excess solution and debris until the expelled fluid is clear.

v. Fiberoptics are cleaned with a cotton swab, dampened with isopropyl alcohol to remove excess lubricant.

vi. Handpieces are packaged in sterilization bags and sterilized in a steam autoclave.

f. Laboratory asepsis

I. Environmental surfaces are barrier-protected or cleaned and disinfected.

II. Use PPE when handling items received in the laboratory until they have been decontaminated.

i. Impressions, prostheses, and other devices

i. Rinse under running tap water to remove blood and OPIM.

ii. Disinfect with an EPA-registered intermediate-level hospital disinfectant with tuberculocidal claim.

iii. Thoroughly rinse under running water before handling.

ii. Laboratory case is sent off-site.

i. Written information is provided regarding the method used to clean and disinfect the material (i.e., type of disinfectant used and exposure time).

iii. Burs, polishing points, rag wheels, or laboratory knives

i. Heat-sterilized, disinfected, or discarded between cases following manufacturer's recommendations.

iv. Metal impression trays and face bow forks are:

i. Heat sterilized between patients.

v. Articulators, case pans, lathes, pressure pots, and water baths

i. Cleaned and disinfected between patients according to manufacturer's recommendation.

vi. Unless waste generated in the laboratory falls under the category of regulated waste, it is discarded with general waste.

Environmental Infection Control

Appropriate environmental infection control measures shall be implemented to keep the oral health care facility in a clean and sanitary condition

1. Background [10,15]

Environmental surfaces such as walls, floors, and sinks do not appear to contribute to significant cross-contamination in the oral healthcare setting. Other surfaces that are frequently touched may serve as reservoirs for microbial contamination and are categorized as clinical contact surfaces (e.g., light handles, switches, radiographic equipment, dental chairside computers, reusable containers of dental materials, drawer handles, faucet handles, countertops, pens, telephones, and doorknobs) and housekeeping surfaces.

2. Execution/Compliance

a. Clinical contact surfaces

I. To prevent contamination, use materials impervious to moisture (e.g., plastic wrap, bags, sheets, tubing, and plastic-backed paper).

i. Remove and discard coverings between patients while wearing surgical gloves.

i. After removing the barrier, the surfaces are examined for visible soil.
ii. Surfaces with visible soil are cleaned and all surfaces disinfected with an EPA-registered intermediate-level hospital disinfectant with tuberculocidal claim.
iii. After removing gloves and performing hand hygiene, clean barriers are placed before the next patient.

ii. At the end of each day, general cleaning and disinfection of all clinical contact surfaces are performed regardless of barrier protection.

i. To facilitate daily cleaning, treatment areas are kept free of unnecessary equipment and supplies.

b. Housekeeping surfaces

I. Unless visibly contaminated, cleaning walls, window drapes, and other vertical surfaces is unnecessary.

i. Floors and sinks are cleaned regularly with a detergent and water or an EPA-registered hospital disinfectant/detergent designed for general housekeeping purpose.

ii. Carpeting and cloth furnishing cannot be reliably disinfected and are avoided in patient care, laboratory, or instruments processing areas.

c. Cleaning and disinfection strategies for spills and spatter (blood or OPIM)

I. Wearing appropriate PPE, visible organic material is removed using disposable paper towels, which are then discarded in a leak-proof and appropriately labeled container.

II. The contaminated surface is cleaned with a detergent and water and disinfected with an EPA-registered intermediate-level hospital disinfectant with a tuberculocidal claim.

Post-exposure Evaluation and Follow-up

Following an exposure to blood or OPIM, OHCPs shall immediately undergo a confidential medical evaluation and subsequent follow-up by a qualified health-care professional in accordance with current recommendations of the U.S. Public Health Service.

1. Background[1,2,16,17]

Exposure to blood or OPIM, including saliva (even when blood is not visible), must be considered potentially infectious. Consequently, post-exposure evaluation and follow-up is a critical element of a comprehensive infection control/exposure control protocol.

2. Execution/Compliance

a. Immediately after an exposure incident

I. Wash injuries with soap and water and apply an antiseptic agent (if available).

II. Report the exposure incident immediately to the Office Infection-control Officer or other designated person.

III. Complete the Uniform Needlestick and Sharp Object Injury Report Form.

b. Within 2 hours of exposure and with the consent of the OHCP, arrangements are made for a post-exposure evaluation by a physician who will be provided with the following information:

I. A copy of the completed Uniform Needlestick and Sharp Object Injury Report Form.

II. A copy of the OHCPs Medical Record (see Figure 1. below).

III. Any information available about the source individual.

i. With the source person's consent, the source person's blood is tested as soon as feasible to determine hepatitis B and C virus, and HIV infectivity.

ii. Results of the source person's testing are made available to the OHCP

iii. The OHCP is informed of the applicable laws and regulations concerning the disclosure of the identity and infectious status of the source person.

IV. Post-exposure management and prophylaxis.

i. After percutaneous, mucous membrane, or non-intact skin exposure to blood or OPIM, the consulting physician will initiate post-exposure management (prophylaxis) according to the latest CDC recommendations.

ii. The consulting physician's written report is obtained within 15 days of the post-exposure evaluation and is made available to the OHCP.

V. A medical record is maintained on every OHCP, which includes the following information:

i. Vaccination status

i. Dates of vaccinations (where appropriate or available).
ii. Evidence of immunity (where applicable or available).
iii. Documentation relative to the individual's inability to receive the vaccinations required or highly recommended.
iv. A signed copy of the mandatory hepatitis B vaccination declaration form (See II. Vaccinations).

ii. A copy of all results of examinations, medical testing, and other post-exposure follow-up procedures.
iii. The medical record is available for examination by the OHCP and a copy is provided upon request.
i. The content is confidential and is not disclosed to anyone, without the OHCP's expressed written consent, except as require by law.

Transmission-based Precautions

To prevent the transmission of *Mycobacterium tuberculosis* (MBT), transmission-based precautions based on a three-level hierarchy of administrative, environmental, and respiratory-protection controls are to be implemented.

1. Background
The primary risk of exposure to *Mycobacterium tuberculosis* (MBT) in the oral healthcare setting is contact with patients with undiagnosed or unsuspected infectious tuberculous (TB) disease. A high index of suspicion and rapid implementation of precautions are essential to prevent and interrupt the transmission of MBT.

2. Execution/Compliance
a. Identification of patients with suspected or confirmed TB disease.
I. When reviewing the medical histories, including a review of organ systems, all patients are routinely asked about a history of
i. Exposure to TB
ii. Latent TB infection
iii. TB disease diagnosis
iv. Medical conditions that increase the risk of TB disease (e.g., HIV infection)
v. Signs and symptoms of TB disease
i. Chronic ill health, coughing with hemoptysis, low-grade fever, weight loss, and night sweats.

b. Isolation of patients with suspected or confirmed TB disease from other patients and OHCPs
I. Patients are not kept in the office setting any longer than required
i. While in the office, these patients are promptly isolated from other patients and OHCPs
ii. They are instructed to observe strict respiratory hygiene and cough etiquette procedures

c. Referral of patients with suspected or confirmed TB disease for medical evaluation and /or required urgent dental care
I. Routine dental care is postponed until a physician confirms that the patient does not have infectious TB or until it is confirmed that the patient is no longer infectious.
II. Patients requiring urgent dental care are referred to an oral healthcare facility that meets the requirements for appropriate environmental and respiratory-protection controls.
i. Environmental control
i. Airborne infection isolation (AII) room
ii. Respiratory-protection control
i. Disposable, non-powered, air-purifying, particulate-filter respirators
i. National Institute for Occupational Safety and Health (NIOSH)-certified particulate-filter respirators (N95, N99, or N100) are used, which have the ability to filter Less than 3 μm particles with a filtering efficiency of 95, 99, and 99.7%, respectively.

Respiratory Hygiene/Cough Etiquette

To prevent the transmission of respiratory tract infections, the implementation of Respiratory Hygiene/Cough Etiquette applies broadly to all persons with signs and symptoms of respiratory tract infection who enter the oral healthcare setting.

1. Background [2,10]
The CDC recommendations evolved during observations during the SARS pandemic that failure to implement basic source control measure with patients, visitors, and healthcare

Figure 1. Uniform Needlestick and Sharp Object Injury Report Form.

Name: _____
Incident Report #: _____
Job Category:
- DDS/DMD (attending/staff)
- DDS/DMD (intern/resident)
- DS I
- DS II
- DS III
- DS IV
- RDH (attending/staff)
- DH I
- DH II
- DA
- Dental technician
- Sterilization personnel
- Housekeeping/ laundry worker
- Other _____

Where did injury occur?
- Treatment room
- Outside treatment room (hallway, etc)
- Emergency clinic
- Operating room
- Procedure room (x-ray, sterilization, etc)
- Dental laboratory
- Pathology
- Other _____

Was the source patient identified?
- Yes
- No

Was the injured person the original user of the sharp item?
- Yes
- No

Was the sharp item:
- Contaminated (known exposure to patient or contaminated equipment)
- Uncontaminated (no known exposure to patient or contaminated equipment)
- Unknown

For what purpose was the sharp item originally used?
- Unknown
- Injection (syringe)
- To connect IV line (intermittent IV/piggyback/IV infusion)
- To start IV (IV catheter or butterfly-type needle)
- To draw a venous blood sample
- To obtain a body fluid or tissue sample
- Fingerstick
- Suturing
- Cutting (surgery)
- Electrocautery
- To contain a specimen or pharmaceutical (glass items, local anesthetic cartridge)
- Other _____

What device or item caused the injury?

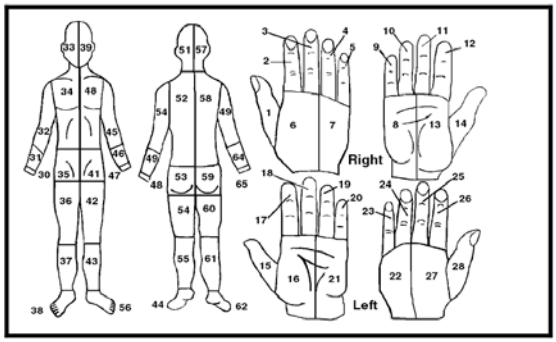
_____

When and how did the injury occur?
- Before use of item (item broke or slipped, assembling device, etc)
- During use of item (item slipped, patient jarred item, etc)
- Between steps of a multistep procedure (between incremental injections, passing instrument, etc)
- Disassembling device or equipment
- In preparation for reuse or reusable instrument (sorting, disinfection, sterilization, etc)
- While recapping a used needle
- Withdrawing a needle from rubber or other resistant material (rubber stopper, IV port, etc)
- Other after use, before disposal (in transit to disposal, cleaning up, left on table, floor, other inappropriate place)
- From item left on or near disposal container
- While putting the item into the disposal container
- After disposal, stuck be item protruding from opening of disposal container
- Item pierced side of disposal container
- After disposal, item protruded from trash bag or inappropriate waste container
- Other _____

If the item caused the injury was a needle, was it a "safety design" with a shield, recessed, or retractable needle?
- Yes
- No

Was the injury:
- Superficial (little or no bleeding)
- Moderate (skin punctured, some bleeding)
- Severe (deep stick/cut, or profuse bleeding)

Mark the location of the injury:



Describe the circumstances leading to this injury:

_____
_____
_____
_____

personnel with signs and symptoms of respiratory tract infection may have contributed to SARS coronavirus (SARS-CoV-2) transmission.

2. Execution/ Compliance

a. Applies to any person with signs of illness when entering the oral healthcare facility, i.e., cough, congestion, rhinorrhea, or increased production of respiratory secretions.

I. The absence of fever does not always exclude **a** respiratory infection.

b. Elements of Respiratory Hygiene/Cough Etiquette

I. Education of oral healthcare professionals (OHCPs), patients, and visitors.

II. Posted signs, in language(s) appropriate to the population served, with instructions to patients and accompanying family members and friends.

III. Source control measures

i. Covering the mouth/nose with a tissue when coughing and prompt disposal of used tissues.

ii. Using a surgical mask on the coughing person when tolerated.

iii. Hand hygiene after contact with respiratory secretions.

iv. Spatial separation, ideally greater than 3 feet, of persons with respiratory infections in common waiting areas.

IV. OHCPs observe Droplet Precautions

i. Wear a mask and perform appropriate hand hygiene when examining and caring for patients with signs and symptoms of a respiratory infection.

Medical Conditions and Work Restrictions

Oral health care facilities shall have written policies to protect patients and OHCPs with latex allergies, to protect OHCPs who are susceptible to opportunistic infections, and to protect patients from OHCPs with transmissible infections.

1. Background[1,2,18]

OHCPs and patients may become susceptible to latex-related adverse reactions, OHCPs may also develop acute or chronic conditions, which may predispose them to opportunistic infections, or OHCPs may acquire potentially transmissible infections. Such individuals should discuss the problem with their medical provider to determine if the condition might affect their ability to safely perform their duties.

2. Execution/ Compliance

a. Minimize latex allergy-related health problems among OHCPs and patients.

I. Reduce exposure to latex-containing materials by substituting non-latex products when appropriate and using appropriate work practice controls.

II. Train and educate OHCPs to recognize signs and symptoms of latex-related adverse effects, i.e.,

i. Allergic contact dermatitis

ii. Urticaria

iii. Angioedema

iv. Allergic rhinitis

v. Anaphylaxis

III. Monitor signs and symptoms of latex sensitivity among OHCPs and patients.

IV. Refer OHCP and patients with signs and symptoms suggestive of latex allergy to a medical provider to confirm diagnosis.

b. Minimize the exposure of OHCPs with acute or chronic diseases to patients who have been diagnosed with a transmissible infectious disease.

I. Consult with medical provider

i. Determine if condition(s) might affect ability to safely perform duties.

c. Minimize the exposure of patients to OHCPs who have been exposed to or have been diagnosed with an infectious disease (Tables 1, 2, 3, and 4).

I. Restriction criteria

i. Mode of transmission.

ii. Period of infectivity.

iii. Level of circulating viral burden.

iv. Level of risk for the transmission of a pathogen in association with a procedure.

II. Procedure-related risk for bloodborne pathogen transmission.

Oral healthcare-associated procedures according to the level of risk for bloodborne pathogen transmission

Category I: Procedures with minimal risk of bloodborne pathogen transmission

i. History-taking

ii. Extraoral physical examination

iii. Intraoral examination

i. Including the use of a tongue depressor, mirror, explorer, or a periodontal probe
iv. Routine preventive dental procedures - not requiring the administration of local anesthesia
i. Application of sealants or topical fluoride
ii. Prophylaxis – not to include subgingival scaling with a hand instrument
iii. Orthodontic procedures
iv. Prosthetic procedures
v. Fabrication of complete dentures
vi. Hands-off supervision of surgical procedures

Category II: Procedures for which bloodborne pathogen transmission is theoretically possible but unlikely
i. Dental procedures requiring the administration of local anesthesia
i. Operative, endodontic, and prosthetic procedures and periodontal scaling and root planing
i. Use of ultrasonic instruments greatly reduce or eliminate the risk of percutaneous injury to the provider
ii. If significant physical force with hand instruments is anticipated to be necessary, scaling and root planing and other Category II procedures could reasonably be classified as Category III
ii. Minor surgical procedures
i. Simple tooth extraction not requiring excessive force
ii. Soft tissue flap procedures
iii. Minor soft tissue biopsy
iv. Incision and drainage of an abscess
ii. Insertion of, maintenance of, and drug administration into arterial and central venous lines

Category III: Procedures for which there is a definite risk of bloodborne pathogen transmission or that have been classified as "exposure prone"
i. General oral surgery
i. Surgical extractions
i. Removal of an erupted or unerupted tooth requiring elevation of a mucoperiosteal flap, removal of bone, or sectioning of tooth and suturing
ii. Apicoectomy and root amputation
iii. Periodontal curettage, gingivectomy, and mucogingival and osseous surgery
iv. Alveoplasty and alveoectomy
v. Endosseous implant surgery
ii. Open extensive head and neck surgery involving bone
iii. Trauma surgery, including open head injuries, facial fracture reductions, and extensive soft issue trauma
iv. Any open surgical procedure with a duration of more than 3 hours, probably necessitating glove change

III. Criteria for recommended clinical privileges:
i. No evidence of having transmitted infection to patients.
ii. Obtained advice from an Expert Review Panel about continued practice.
iii. Follow-up twice a year to demonstrate the maintenance of an acceptable viral burden.
iv. Follow-up by medical professional with expertise in the management of infections with bloodborne pathogens.
v. Consulted with an expert about and strictly adhere to optimal infection control procedures.
vi. Agreed to and signed a contract or letter from the Expert Review Panel that characterizes responsibilities.

Healthcare Emergency Temporary Standard
On June 21, 2021, the Occupational Safety and Health Administration (OSHA) adopted a Healthcare Emergency Temporary Standard (Healthcare ETS) protecting workers from SARS-CoV-2 infection in settings where they provide healthcare or healthcare support services. As such, the Healthcare ETS attempts to maximally mitigate the airborne transmission risk associated with SARS-CoV-2 in the workplace. In addition, the Centers for Disease Control (CDC) has continued to update and refine its SARS-CoV-2 mitigation guidance (Interim Infection Prevention and Control Recommendations for Healthcare Personnel During the Coronavirus Disease 2019 (COVID-19) Pandemic). The Healthcare ETS was to be superseded by a permanent standard within

6 months. However, on December 27, 2021 OSHA announced that it had yet to complete the final rule and as a consequence withdrew the non-recordkeeping portions of the Healthcare ETS.

The most recent recommendations (August 2021 for OSHA and May 2024 for CDC) are indicated in this table and in the "work restrictions" table 3 above. As of the most recent update of this course in June 2025, some of the CDC documents have been archived and are no longer being updated. The OHCP should bear in mind that OSHA will vigorously enforce the general duty clause and its general standards, including the Personal Protective Equipment (PPE) and Respiratory Protection Standards, to help protect healthcare employees from the hazard of COVID-19 and other respiratory viruses.

Table 1. Work Restrictions: HAV, HBV, HCV, and HIV Infections.

Pathogen	Circulating Viral Burden	Clinical Privileges
HBV and HCV	$<10^4$ GE/mL	Category I, II, and III procedures*
	$\geq 10^4$ GE/mL	Category I and II procedures*
HIV	$<5 \times 10^2$ GE/mL	Category I, II, and III procedures*
	$\geq 5 \times 10^2$ GE/mL	Category I and II procedures*

* Clinical privileges predicated on the infected healthcare provider meeting the following requirements:

- ✓ No evidence of having transmitted infection to patients,
- ✓ Obtained advice from an Expert Review Panel about continued practice
- ✓ Follow-up twice a year to determine viral burden
- ✓ Follow-up by a personal physician who has expertise in the management of infections with HBV, HCV, and HIV and who is allowed to communicate with the Expert Review Panel about the infected provider's clinical status
- ✓ Consulted with an expert about optimal infection control procedures and strictly adheres to the recommended procedures
- ✓ Routine use of double gloving and frequent glove changes during procedures (particularly when performing tasks known to compromise glove integrity) for all instances in patient care for which gloving is recommended
- ✓ Agreed to and signs a contract or letter from the Expert Review Panel that characterizes the infected providers responsibilities

Table 2. Work Restrictions: Measles, Mumps, and Rubella Infections.[3,18]

Infectious state		Restrictions
Measles	Post-exposure Susceptible OHCP	Exclude from duty from the 5th day after first exposure through the 21st day after last exposure OR for 4 days after rash appears.
	Acute infection	Exclude from duty for 5 days after rash appears.
Mumps	Post-exposure Susceptible OHCP	Exclude from duty from the 12th day after first exposure through the 26st day after last exposure OR for 9 days after onset of parotitis.
	Acute infection	Exclude from duty for 5 days after onset of parotitis.
Rubella	Post-exposure Susceptible OHCP	Exclude from duty from the 7th day after first exposure through the 21st day after last exposure.
	Acute infection	Exclude from duty for 5 days after rash appears.

Table 3. Work Restrictions: Herpes Simplex and Varicella Infections.[3,18]

Infectious state		Restrictions
Herpes simplex	Acute orofacial herpes	Evaluate the need to restrict from the care of patients at high-risk until lesions heal.
	Acute herpetic whitlow	Exclude from duty until lesions heal.
	Acute genital herpes	No Restrictions
Varicella (chicken pox)	Post-exposure Susceptible OHCP	Exclude from duty from the 10th day after first exposure through the 21st day after last exposure.
	Acute infection	Exclude from duty until all lesions dry and crust.
Varicella zoster (shingles)	Post-exposure Susceptible OHCP	Exclude from patient care from the 5th day after first exposure through the 21st day after last exposure.
	Acute infection Healthy OHCP	Cover lesions and restrict from the care of patients at high-risk until all lesions dry and crust.
	Acute infection Immunocompromised OHCP	Restrict from patient care until all lesions dry and crust.

Table 4. Work Restrictions: Respiratory Tract Infections.[3,18]

Infectious state		Restrictions
Influenza and syncytial viruses	Acute infection with fever	Exclude from the care of patients at high-risk until acute symptoms resolve.
Group A *streptococci*	Acute infection	Restrict from duty until 24 hours after treatment is initiated.
Meningococcus	Acute infection	Exclude from duty Until 24 hours after start of effective therapy
Mycobacterium tuberculosis	PPD Positive	No Restrictions
	Acute infection	Exclude from duty until proven non-infectious.
SARS-CoV-2[19,20]	OHCP with potential exposure*	✓ Asymptomatic OHCP do not require work restrictions ✓ Self-monitor for fever (>100°) or symptoms consistent with COVID-19 ✓ Medical evaluation as needed
SARS-CoV-2	OHCP with confirmed infection	✓ For OHCP who are not severely immunocompromised and who were asymptomatic throughout their infection may return to work when at least 7 days have passed since the date of their first positive viral diagnostic test. ✓ OHCP with mild to moderate illness who are not severely immunocompromised, exclude from work until: • At least 7 days have passed since symptoms first appeared *and* • At least 24 hours have passed since last fever without the use of fever-reducing medications *and* • Symptoms (e.g., cough, shortness of breath) have improved ✓ OHCP with severe to critical illness who are not severely immunocompromised, exclude from work until: • At least 10 and up to 20 days have passed since symptoms first appeared *and* • At least 24 hours have passed since last fever without the use of fever-reducing medications *and* • Symptoms (e.g., cough, shortness of breath) have improved • Consider consultation with infection control expert **Note:** OHCP who are moderately to severely immunocompromised may produce replication-competent virus beyond 20 days after symptom onset or, for those who were asymptomatic throughout their infection, the date of their first positive viral test. Consultation with infectious diseases specialists is recommended. Use of a test-based strategy for determining when these HCP may return to work could be considered. * Risk criteria for potential exposure: Prolonged close contact (>15 minutes) with a patient, visitor, or HCP with confirmed SARS-CoV-2 infection *and* ✓ OHCP not wearing a respirator or facemask ✓ OHCP not wearing eye protection if the person with SARS-CoV-2 infection was not wearing a cloth face covering or facemask. ✓ OHCP not wearing all recommended PPE (i.e., gown, gloves, eye protection, respirator) while performing an aerosol-generating procedure.

OSHA COVID-19 Healthcare Emergency Temporary Standard (ETS) and CDC Guidance Pertaining to Dentistry[20,21]

Each facility should maintain a COVID-19 plan and have an assigned designated safety coordinator with authority to ensure compliance.

- ✓ Implement a training plan to ensure all employees comprehend dental procedures associated with COVID-19 transmission and relevant office policies and procedures.
- ✓ Encourage vaccination for any eligible employees
- ✓ Implement a workforce and patient screening plan
  - Healthcare personnel should test when experiencing COVID-19 symptoms and when they have experienced higher risk exposure (prolonged direct contact with a confirmed case without full PPE)
  - Each employee should promptly inform the employer when the employee is COVID-19 positive, suspected of having COVID-19, or experiencing COVID-19 symptoms.
  - Follow current guidance for workplace restrictions—see table 3.
  - Postpone all non-urgent dental treatment for patients with suspected or confirmed SARS-CoV-2 infection until they meet criteria to discontinue Transmission-Based Precautions. These patients should only be provided dental care if medically necessary.
  - If a patient presents with a fever strongly associated with a dental etiology, but no other symptoms consistent with COVID-19 are present, dental care can be provided following the practices recommended for routine health care during the pandemic. Notify at-risk employees within 24 hours when a person who has been in the workplace is COVID-19 positive.
- ✓ Report work-related COVID-19 fatalities and in-patient hospitalizations to OSHA.
- ✓ Implement physical distancing in communal areas for unvaccinated or at-risk employees

Ensure existing HVAC systems are used in accordance with manufacturer's instructions and design specifications for the systems and that air filters are rated Minimum Efficiency Reporting Value (MERV) 13 or higher, if the system allows it.

Dental treatment should be provided in individual patient rooms whenever possible. For facilities with open floor plans, there should be:

- ✓ At least 6 feet of space between patient chairs.
- ✓ Physical barriers between patient chairs.
- ✓ Consider the use of portable HEPA air filtration systems.
- ✓ Operatories should be oriented parallel to the direction of airflow if possible.
- ✓ Where feasible, consider patient orientation carefully, placing the patient's head near the return air vents, away from pedestrian corridors, and toward the rear wall when using vestibule-type office layouts.
- ✓ Ensure to account for the time required to clean and disinfect operatories between patients when calculating your daily patient volume.

When performing aerosol generating procedures on patients who are not suspected or confirmed to have SARS-CoV-2 infection, ensure that OHCP correctly wear the recommended PPE (Standard Precautions) and use mitigation methods such as four-handed dentistry, high evacuation suction, and dental dams to minimize droplet spatter and aerosols. For additional protection, the OHCP may choose to wear a NIOSH-approved N95 or equivalent or higher-level respirator.

Summary

Standard Precautions in combination with Transmission-based Precautions and Respiratory Hygiene/Cough Etiquette provide a hierarchy of preventive strategies to eliminate or minimize HAIs. In response to the COVID-19 pandemic, the CDC continues to update and refine its guidance to mitigate the spread of SAR-CoV-2 and future respiratory viruses in the dental setting. In addition, OSHA released the Healthcare ETS in 2021 to reduce occupational exposure to SAR-CoV-2 infection. It is reasonable to anticipate that some or all of current interim precautions may be formally incorporated into a future infection control standard.

Course Test Preview

To receive Continuing Education credit for this course, you must complete the online test. Please go to: *https://www.dentalcare.com/en-us/ce-courses/ce342/test*

1. To prevent or minimize HAIs among OHCP and patients, oral healthcare facilities, like all healthcare facilities, are mandated to develop a written infection control/exposure control protocol predicated on a hierarchy of preventive strategies.

A. True
B. False

2. Which of the following statements is incorrect in reference to the mandated Infection Control/Exposure Control Protocol?

A. The concept of Universal Precautions implies only symptomatic patients are considered as infectious.
B. Standard Precautions and Transmission-Based Precautions provide the fabric for an effective Infection Control/Exposure Control Protocol.
C. Infection Control/Exposure Control Protocol is predicated on the concept that blood and all other body fluids are potentially infectious.
D. Infection Control/Exposure Control Protocol is a hierarchy of preventive strategies designed to protect OHCPs and patients alike.

3. Which statement is inaccurate when developing quality infection control/exposure control strategies?

A. Infection control/exposure control strategies should be appropriate for the oral healthcare setting.
B. As these strategies deviate from optimal design and implementation, the quality of infection control/exposure control program decreases
C. It is recommended that a dental hygienist be appointed as the Office Infection-Control Coordinator (OICC).
D. The creation and maintenance of a safe work environment mandates the commitment and accountability of all OHCP.

4. Which is NOT included among the objectives of the OHCPs education and training program?

A. the risk of healthcare-associated infections
B. preventive strategies
C. exposure management and follow-up
D. administrative controls
E. cost control measures.

5. Which of the following is NOT a principal prerequisite for cross-infection?

A. source or reservoir of infectious agents
B. susceptible host with a portal of entry receptive of the agent
C. mode of transmission for the agent
D. the presence of an infected patient at the time of transmission

6. Pathogens may be transferred from the source to a host by direct or indirect contact transmission or respiratory transmission.

A. True
B. False

7. Which of the following is NOT a pathogenic organisms of concern in the oral healthcare setting?

A. HBV
B. HAV
C. HIV
D. HCV

8. Which inaccurately describes the characteristics of an office education and training program?

A. Completed by all OHCPs prior to potential exposure to blood and OPIM .
B. An education and training program is to be scheduled during nonworking hours and the cost is to be borne by the OHCP.
C. An education and training program is to be conducted by a knowledgeable speaker who can provide an opportunity for interactive questions and answers.
D. An individual training record is to be maintained on all OHCP.

9. Which is not including in the steps of hepatitis B vaccination?

A. Primary immunization with hepatitis B vaccine consists of a series of three intramuscular injections.
B. Post-vaccination confirmation of seroconversion is mandated 1-2 months after the third dose.
C. A second 3-dose vaccine series is recommended for an OHCP who fails to develop an adequate antibody response with the primary vaccination series,
D. If no antibody response occurs to the hepatitis B vaccination series, testing for HBsAg is strongly recommended.

10. Which statement is inaccurate regarding vaccinations for the OHCP?

A. Hepatitis B vaccination is to be made available to all OHCP, at the time of initial assignment to tasks in which exposure to blood or OPIM may occur.
B. If the hepatitis B vaccination series is declined, the OHCP must sign a copy of the Mandatory Hepatitis B Vaccination Declination Form.
C. The U.S. Public Health Service recommends routine booster doses of the hepatitis B vaccine.
D. Other vaccines highly recommended for all OHCP include influenza, measles, mumps, rubella, varicella, and pertussis.

11. Personal protective equipment (PPE) is designed to protect the skin and mucous membranes and respiratory epithelium of OHCP from exposure to pathogenic organisms.

A. True
B. False

12. Which of the following statements is NOT true regarding protective clothing?

A. Protective clothing is to be changed as soon as possible if penetrated by blood or OPIM.
B. Protective clothing is removed before leaving the work area.
C. Dirty protective clothing is to be placed in designated areas before leaving the work area.
D. Protective clothing must be disposable

13. Which of the following statements regarding gloves is inaccurate?

A. To reduce the risk of latex-related allergies, low-allergen latex gloves, or non-latex gloves should be used.
B. Torn gloves should not be changed until treatment of the patient is completed.
C. Washing gloves can lead to the formation of glove micro-punctures and subsequent hand contamination.
D. Double gloving is acceptable for extensive oral surgical procedures.

14. Which of the following statements is inaccurate regarding facemasks?

A. Surgical masks, which cover both the nose and the mouth, must be worn by all OHCPs during clinical procedures that generate splash and spatter.
B. Masks should be changed whenever visibly soiled.
C. Change as soon as possible if it becomes wet during a lengthy procedure.
D. NIOSH certified respirators must be worn by all OHCPs during any clinical process likely to generate aerosols.

15. Protective eyewear with solid side shields or a face shield must be worn by OHCP and patients during the clinical process likely to generate splash, splatter, and aerosols.

A. True
B. False

16. The technique of wetting the hands under warm running water, applying an antimicrobial soap, rubbing the hands together vigorously for 15 seconds to work-up a lather, using the fingernails to clean the fingernails on the opposing hand, rinsing the soap off with the hands held under warm running water, and drying the hands with a disposable paper towel is _____.

A. routine handwashing
B. antiseptic handwashing
C. antiseptic hand rub
D. surgical asepsis

17. Which is not a step for preparing the DTR for the patient?

A. Place protective plastic covers on clinical contact surfaces and hard-to-clean areas and equipment.
B. Have appropriate instrument packs and supplies ready for the provider, assistant and the patient to begin treatment.
C. Check all sterilized instrument packs to ensure that the external chemical indicator has changed to the appropriate color.
D. Open packs of sterilized instruments with gloved hands

18. Which precaution is not a requirement for the treatment phase of patient care?

A. All procedures are performed in such a manner as to minimize splashing, spraying, spattering, and the generation of aerosols.
B. After the dental procedure, patients must rinse with chlorhexidine gluconate-, essential oil-, PCP or povidone iodine-containing mouthwash.
C. Use rubber dental dam, high volume evacuator (HVE) and other protective barriers, engineering and work practice controls wherever possible.
D. Use one handed “scoop” technique or a recapping safety device to recap anesthetic needles.

19. Which is incorrect with respect to the DTR-turn-around between patients?

A. Wear PPE while handling contaminated instruments and cleaning contaminated surfaces.
B. Place instruments in cassette tray or approved container for transport to the central sterilization room (CSR).
C. Clean and disinfect clinical contact surfaces with an EPA-registered intermediate-level hospital disinfectant with a tuberculocidal claim
D. Remove gloves, perform hand hygiene and then transport instrument trays, packs, and cassettes to the receiving side of CSR.

20. Which step is avoided when securing the DTR at the end of the day?

A. Wear appropriate PPE while cleaning contaminated surfaces.
B. Clean and disinfect all contact surfaces, dental unit surfaces, and countertops with an EPA-registered disinfectant.
C. Follow manufacturer's instructions for water lines, suction hoses, waterline treatment products and dental unit water bottles.
D. Store regulated medical waste under the sink

21. Generally, blood and/or saliva-tinted single use items are not considered regulated waste and are placed in the regular trash receptacle.

A. True
B. False

22. Which statement is inaccurate when managing regulated waste?

A. Disposable sharps are placed in a rigid, puncture-resistant, leak-proof container with secure lid.
B. Items that drips when vertical, release fluid when compressed, or have dried on fluid that could flake off in transit are placed into a small biohazard bag.
C. Regulated waste is disposed of according to the requirements established by federal environmental agencies.
D. Biohazard labels are affixed as close as feasible to containers of regulated waste.

23. In the receiving, cleaning, and decontamination section of the central instrument processing area, reusable instruments are first cleaned with a hands-free process using an ultrasonic system with a strainer-type basket.

A. True
B. False

24. Semi-critical patient care items may be disinfected with an EPA-registered intermediate level disinfectant with a tuberculocidal claim.

A. True
B. False

25. Heat-tolerant critical items must be heat sterilized in an FDA cleared device.

A. True
B. False

26. Which step should be avoided when monitoring the functioning of a sterilizer?

A. A chemical indicator should be placed in a visible area of each package before sterilization processing.
B. A biological indicator spore test should be processed through a sterilizer cycle at least once a week.
C. The cassette tray or pack containing the biological indicator should be placed on the top of the load.
D. Mechanical monitoring, i.e., confirming the manufacturer's recommended settings cycle time, temperature, and pressure should be completed with each load.

27. All handpieces, unless disposable, are heat sterilized between patients according to manufacturers' recommendations.

A. True
B. False

28. Which approach will increase backflow in low-volume suction lines?

A. Instruct the patient to avoid closing around the saliva ejector.
B. Hold the suction tubing above the patient's mouth.
C. Avoid the simultaneous use of other evacuation devices.
D. Hold the suction tubing below the patient's chin.

29. FDA-cleared film barrier pouches and sensor covers should be used when exposing dental images; after exposure, dental film should be removed from the pouch and placed in a clean container.

A. True
B. False

30. Which is not a required step of infection control during oral surgical procedures?

A. For oral surgical procedures, clinicians must perform surgical hand asepsis.
B. The aerosols created during thermal destruction of tissue through lasers require the use of N-95 or greater masks.
C. Clinicians must don surgeon's gloves for oral surgical procedures,.
D. Only sterile saline or sterile water can be used as a coolant when performing oral surgical procedures.

31. Which inaccurately describes the management of extracted teeth?

A. Extracted teeth should be considered to be potentially infectious.
B. Extracted teeth containing dental amalgams should be disposed of through incineration.
C. Extracted teeth can be disinfected and returned to the patient upon request.
D. Extracted teeth must be heat-sterilized or disinfected in 10% formalin before clinical exercises or study.

32. Which lab management approach does not align with laboratory asepsis?

A. Barrier-protect or clean and disinfect environmental surfaces in the same manner as clinical contact surfaces in treatment areas.
B. Disinfect metal impression trays and face bow forks with an EPA-registered hospital level disinfectant with tuberculocidal claim.
C. Clean and disinfect articulators, case pans, lathes, pressure pots, and water baths between patients according to manufacturers' recommendations.
D. Heat-sterilize, disinfect, or discard potentially contaminated burs, polishing points, rag wheels, and laboratory knives according to manufacturers' recommendations.

33. Impressions, prostheses, and other devices must be rinsed under running tap water to remove blood and OPIM, disinfected with an EPA-registered intermediate-level disinfectant with tuberculocidal claim, and thoroughly rinsed under running tap water before handling.

A. True
B. False

34. Unless cover gloves are worn, chart paperwork should be notated and radiographs viewed before gloving or after the gloves are removed and the hands are washed.

A. True
B. False

35. Which does not align with environmental infection control recommendations?

A. To prevent contamination of clinical contact surfaces cover them with materials impervious to moisture.
B. Before removing the gloves used to disinfect the DTR, place clean barriers on clinical contact surfaces.
C. Housekeeping surfaces such as floors and sinks are cleaned regularly with a detergent and water or an EPA-registered disinfectant/detergent.
D. At the end of each day, general cleaning and disinfection of clinical contact surfaces are performed regardless of barrier protection.

36. Which is NOT included in the steps of post-exposure evaluation and follow-up?

A. Immediately after an exposure incident wash injuries with soap and water and apply an antiseptic agent (if available).
B. Following a needlestick or sharp object injury a post-exposure evaluation must be made within 2 hours of exposure.
C. Report the exposure incident to the Office Infection-Control Officer or other designated person immediately following exposure.
D. The source person must be identified within 24 hour of an exposure incident.

37. After percutaneous, mucous membrane, or non-intact skin exposure to blood or OPIM the consulting medical provider will initiate post-exposure prophylaxis, if applicable, and follow-up according to the latest CDC recommendations.

A. True
B. False

38. Which action is not included in an appropriate TB infection-control protocol in a community-based oral healthcare setting?

A. Identify patients with suspected or confirmed TB disease
B. Isolate patients with suspected or confirmed TB disease from other patients and OHCPs
C. Refer patients with suspected or confirmed TB disease for medical evaluation
D. Schedule the provision of dental care for patients with TB at the beginning of the day

39. Which is NOT an element of an effective Respiratory Hygiene/Cough Etiquette program?

A. Posted signs, with instructions to patients and visitors.
B. Source control measures
C. Education of OHCPs, patients, and visitors
D. Enforcement predicated on the presence of fever.

40. Which action inadequately addresses latex allergy-related health problems among OHCPs and patients?

A. Use appropriate work practice controls and implement non-latex products.
B. Train OHCPs to recognize signs and symptoms of latex-related adverse effects.
C. Refer OHCP with suspected latex allergy to a medical provider to confirm diagnosis.
D. Refer patients with a confirmed latex allergy to their medical providers.

41. Which scenario is irrelevant in regards to exposure of patients to OHCPs with an infectious disease?

A. The OHCP with acute orofacial herpes
B. The OHCP with acute influenza with fever
C. The OHCP with acute genital herpes
D. The OHCP with acute varicella infection

42. Which of the following are considered Category I procedures, i.e., procedures with minimal risk of bloodborne pathogen transmission?

A. Routine preventive dental procedures - not requiring the administration of local anesthesia
B. Operative, endodontic, and prosthetic procedures and periodontal scaling and root planning
C. Minor surgical procedures
D. Periodontal curettage, gingivectomy, and mucogingival and osseous surgery

43. Which is not included the OSHA Healthcare ETS and CDC guidance to mitigate the transmission of SARS-CoV-2 in the dental setting?

A. Implementation of a workforce screening plan
B. Postpone non-urgent dental treatment for patients with a SARS-CoV-2 infection
C. Follow workplace restrictions when a positive COVID-19 test is confirmed.
D. All patients presenting with a fever are considered to be infected with COVID-19.

44. Which is not included in the OSHA Healthcare ETS and CDC guidance to mitigate the transmission of SARS-CoV-2 in the dental setting?

A. Mandatory use of a NIOSH-approved N95 or equivalent or higher-level respirator when providing patient care.
B. Whenever possible, create physical distancing between patients
C. Ensure existing HVAC systems are used in accordance with manufacturer's instructions and design specifications for the systems and that air filters are rated Minimum Efficiency Reporting Value (MERV) 13 or higher, if the system allows it.
D. Whenever possible, provide dental care in individual treatment rooms.

45. CDC states that asymptomatic health care workers do not need work restrictions. OSHA considers compliance with the terms of the Healthcare ETS as satisfying an employer's related obligations under the general duty clause, respiratory protection, and PPE standards.

A. The first part of the statement is true, but the second part of the statement is false.
B. The first part of the statement is false, but the second part of the statement is true.
C. Both parts of the statement are true.
D. Both parts of the statement are false.

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Additional Resources

- No Additional Resources Available

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